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## RESULTS OF A WORD-ANALYSIS TEST

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This test was given, through the courtesy and with the hearty cooperation of the Department of English, to 522 students in the required course in English Composition during the second semester, 1920-21. Conflicts in schedule and the desire to give as many of the sections the test in one day as we could make it impossible to reach all the members of the class. The validity of the results is thus impaired by the relatively small number of papers available. They are still thought to have some significance for teachers of Latin. The majority of the students were of course Freshmen, representing all the Undergraduate Schools (College, Education, Economics, Mines, Engineering and Chemistry). The number tested, though small, may be regarded as a fair cross section of the class. Some of the students belonged to the other classes: one of the highest scores was made by a Senior of Polish birth who was required to take this course because he came to this country only in the summer of 1920. One section was composed of evening students, many of them of more mature years than the average college freshman. This section did very well on the test.

The purpose of the test was to find out to what extent college freshmen possessed the ability to analyze words and thus determine their meaning. The words were not chosen by chance nor yet by any method of sampling. They were chosen deliberately to test the power to deal with linguistic emergencies of the sort that may be met in any but the simplest reading matter. They were chosen also to aid in ascertaining the habits of students under such circumstances. All the words will reveal something at least of their meaning under analysis. Five are of Greek origin, the others of Latin, and with the exception of "antediluvian," the essential elements of all are found in the vocabulary of high school Latin. Students of Latin should therefore have a decided advantage. The test was then not intended to measure extent of

vocabulary, and the words chosen are not necessarily fair samples of the average vocabulary. The intention was to measure power rather than achievement. In a sense the test becomes a test of perception and also a test of intelligence. It should be borne in mind that there was no effort to compare Latin and non-Latin students as to size or rate of acquisition of vocabulary. In this respect the test differs from most other tests of this general kind.

The list of words is as follows: tergiversation, diaphanous, pestiferous, intercessor, omniscient, motivate, sympathy, coadjutor, beatitude, tercentenary, et cetera, internecine, incomprehensible, diabolical, centripetal, prosecute, reverential, hypocrite, incommiscible, sycophant, alias, equanimity, vitiate, antediluvian, disintegrate. Some of the Greek words were chosen from Mr. Irland's list (see his *High Schools and Classics*, reprinted from the *Atlantic Monthly* by the American Classical League). The time limit was 25 minutes. The students were informed that a definition showing that a word had been understood through analysis was preferable to one merely remembered from a dictionary. The necessary vagueness of this direction may have affected somewhat the answers given, and certainly affected the scoring of some answers. Some persons knew how to use "alias" correctly but did not know how it got its present meaning and use.

Each word was graded on a scale of 0 to 4. As uniformity in grading was more important than strict accuracy (the scores having relative rather than absolute significance), all the papers were scored by one person after consultation with the other authors as to standards and acceptable definitions of each word. The perfect score of 4 was given only to an answer that showed an understanding of the meaning of the English word plus the ability to trace it to its source. The highest score was 92, the lowest 0, the median 42.7. Even though we console ourselves with the thought that the scores are important relatively rather than absolutely, that the test was not designed to measure vocabulary-acquisition, and that the method of scoring did not insure certain varieties of justice, it is impossible to find much satisfaction in these results. The number of students tested is too small to encourage generalization, but the results are another indication

of the linguistic weakness of our students and their comparative helplessness in the face of such difficulties.

The following table shows the distribution of the scores according to the amount of Latin studied. For easy comparison the distribution is expressed in percentages:

	6 yrs.	5 yrs.	4½ yrs	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.
Number of students	1	2	9	90	69	213	47	91
Lowest quartile			11.1	7.7	11.6	28.6	42.5	37.3
Third quartile		50.0		22.2	21.7	24.8	21.3	35.1
Second quartile			44.4	22.2	29.0	28.2	21.3	18.7
Highest quartile	100.0	50.0	44.4	47.9	37.7	18.4	14.9	8.9

The interpretation of these figures is as follows: The number of students who had studied, e. g., 4 years of Latin is 90. Of these 47.9% are in the highest quarter of the group, and only 7.7% in the lowest. The number who had had no Latin is almost the same. Yet of these only 8.9% were in the highest quarter while 37.3% were in the lowest quarter. Thus a four-year Latin student has about five times as good a chance to be among the highest fourth of the class and the same chance to escape being among the lowest fourth. The three students with 6 and 5 years of Latin are all foreign born and relatively unfamiliar with English. Their success in this test shows the value of their linguistic training. Another foreign born student, whose paper was thrown out because he gave only the Latin and Greek sources and no meanings at all (his answers were almost perfect as far as he went) testifies that he follows his lectures mainly through his knowledge of Latin. This student had 8 years of Latin, 6 years of Greek and 8 years of German in a Polish Gymnasium. The 9 students with 4½ years of Latin were taking freshman Latin at the time of the test and had had considerable drill in derivative work. It is to be regretted that all the Latin freshmen were not tested.

These scores therefore reveal the value of Latin in the mastery of vocabulary. The three- and four-year students are distinctly better than the others, a fact which may be put against the recent testimony of President Brown (accepted by Professor Judd) that Latin students make little progress after the second year. These figures would suggest that in some respects they do. It

would be interesting to know the reasons. Perhaps Latin is fresher in mind; perhaps these students have had more drill in sight translation, with the inevitable insistence on analysis and derivative work; perhaps the habit of analyzing words has been more firmly fixed, and this habit is certainly one that can be taught and that can carry over to new activities. Possibly other causes still were operative. Only more material and prolonged investigation can tell.

The next chapter of our interpretation is not so pleasant. The scores of the highest quartile range from 54 to 92. Only 8 persons made scores of 80 or higher, 7 scored from 75 to 79 and 10 more from 70 to 74. If the passing grade had been 70 only 25 would have passed. Evidently though our Latin students do better than the non-Latin, they do not do very well. The distribution of these 25 students according to the amount of Latin studied is as follows; percentages are used as before:

6 yrs.	4½ yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.
4.0	12.0	40.0	12.0	16.0	12.0	4.0

Latin is undoubtedly one factor in the superior success of these students, but only one. All but 2 of the 25 under consideration have studied other foreign languages. The highest score (92) was made by an evening student who had studied Latin 4 years, German 3, French 2, and Greek 2. A student with 4 years of Latin and 2 of French made 88. The Senior of Polish birth, who made 83, states that he has had "6 years Latin, 8 German, 7 French, 1 Greek, etc., etc., etc." A large number of students derived "diabolical" from the French or Spanish, while many more said that "incomprehensible" came from French or Spanish rather than Latin. This suggests that linguistic connections may be made by modern language teachers more successfully than by us. The amount and character of the influence of other languages on the scores can not at this time be determined.

The papers were also scored according to the number of words tried. The results are negative. The higher scores of the three- and four-year Latin students imply that they tried more words. No student with four or more years of Latin tried fewer than 12

words and only 16 tried fewer than 18. However one student who had had four years of Latin and who tried 20 words making a score of 18 offered the following definitions, showing an absolute abuse of his Latin training: tergiversation, "to have three in a conversation, ter, three from Latin;" incomprehensible: "it is not natural or likely to happen, something out of the ordinary;" diaphanous: "two shaped, dia- two from latin (sic), phanous—shape from latin;" pestiferous: "narrow minded person, pesti—narrow from latin." For such students the study of Latin is positively dangerous. Perhaps I should add, for such teachers. The same is true of another four-year student who derived "reverential" from revento, turn against, and "vitiate" from vito, life. Thirty students tried all the words. According to the amount of Latin studied they are distributed as follows (numbers, not percentages, used here):

6 yrs.	5 yrs.	4½ yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.	not given
1	1	1	10	12	1	2	2	

No conclusions can be drawn from such figures. On the other hand, of 55 students who tried fewer than 12 words, the distribution in numbers is as follows:

6 yrs.	5 yrs.	4½ yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.	not given
			3	21	6	24	1	

We may infer then that the study of Latin does have some effect on the readiness of students to attempt the solution of such problems as these, in some cases perhaps too much effect. Farther than that we can not go at present. The amount of influence exerted by the study of other foreign languages can not be estimated at this time.

It is our desire that ultimately we may be able to correlate these scores with intelligence scores, but the material is not yet available. The entire scholastic records of these students should be carefully studied, but this has not been done as yet. It is known that a considerable number of the students making low scores have been dropped for poor grades, but exact figures are not available at present. It is not believed that this test by itself has any great predictive value, but this needs investigation.

While most of the students tested come from Pennsylvania the number from other states is large enough to suggest a fear that the conditions are fairly general. It is clear that greater ability to handle new words and improved habits of attack upon new words will not automatically result from the study of Latin. Derivatives will not teach themselves. Everything indicates that one of the principal aims, if not the most important aim, of Latin teaching in the future will be better English, and along with that concrete result, better linguistic habits. This test indicates clearly that a more conscious effort must be made by teachers. In consequence, our freshman courses have already been modified to include more drill on derivative work and the creation of better habits of attack through more systematic work in sight translation, and still more work in this direction will be done with next year's classes. These measures are taken despite the comparative success of the few members of the freshman Latin classes who took this test. It is believed that similar steps can profitably be taken in the secondary schools. For several years the University of Pittsburgh has conducted an annual Latin contest. The preliminary consists of sight translation, the final of a derivative contest. Usually the prizes are won by students from schools that pay considerable attention to this sort of work. Such results are not gained by mere chance. Conscious effort must be made by teacher and pupil.

These comments are not made in a spirit of discouragement or criticism. We confess that we were disappointed that the scores of Latin students were not larger and that the gap between them and the non-Latin students was not wider. We are glad that they did so well, but we wish that they had done still better.

We hope that it may be possible this year to repeat the test with larger numbers of students, and if other schools, particularly the colleges, will give the test to their freshmen, we shall be glad to score the papers as well as to furnish copies of the test and directions for its administration. Results from individual institutions will be communicated to them and published separately or held for mass publication as desired. By such means we hope that some progress may be made toward learning the

facts, and without such accumulations of facts we can not hope for much improvement in the Latin situation. With them we can proceed to prove to all what we believe in—the right of Latin to a place in any scheme of education.<sup>1</sup>

#### ADDENDUM

During the first week of this school year, the same test was given to 583 freshmen just entering. The difference in date may make comparisons with last year's scores of uncertain validity. The high score was 73, the median 32.5, the low score 0. The scores are therefore considerably lower than those of last year; to what extent this is due to the instruction in English that last year's class had had can not be determined. The distribution is as follows (expressed as in the first table above):

	8 yrs.	6 yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.
Number of students	1*	1*	90	75	242	49	125
Lowest quartile			12.3	8.2	24.5	26.6	44.8
Third quartile	100		13.3	26.6	29.3	36.7	28.8
Second quartile		100	27.7	18.6	23.9	22.5	20.0
Highest quartile			46.7	46.6	22.3	14.2	6.4

\*Born and trained abroad.

The interpretation of these scores may be inferred from the preceding discussion.

Forty-two of these students have been put into a sub-freshman course in English, to enable them to remedy defects in training. Their distribution according to amount of Latin is:

	8 yrs.	6 yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.	0 yrs.
Number of students	1	0	3	7	17	5	9
Percentage	2.4		7.1	16.7	40.5	11.9	21.3

The distribution according to scores is as follows:

Lowest quartile, 22 or 52.4%; third quartile, 12 or 28.6%; second quartile, 5 or 11.9%; highest quartile, 3 or 7.1%. The test therefore appears to have a certain amount of predictive value.

<sup>1</sup> The Department of Latin is prepared to administer certain other Latin tests as well, particularly in the secondary schools.